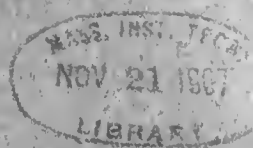




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RISKY AND CAUTIOUS SHIFTS IN
GROUP DECISIONS: THE INFLUENCE OF
WIDELY HELD VALUES

James A. F. Stoner

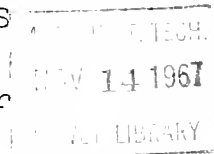
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ABSTRACT

An extensive series of studies has shown that group decisions on life situation items involving a risky dimension are significantly different from the average of the initial individual decisions of the members of the group. The present study investigates the possibility that widely held values and individuals' perceptions of their own riskiness relative to "other people like them" are important factors in individual and group decisions on life situation items. Initial individual decisions on the items are found to be consistent with widely held values as assessed on a separate instrument. Significant differences between individuals' perceptions of their own riskiness and that of other people like them are also found.

The life situation items were divided into two types of items on the bases of widely held values and the subjects' perceptions of their own relative riskiness. For items on which the widely held values favored the risky alternative and on which subjects considered themselves relatively risky, unanimous group decisions were more risky than the average of the initial individual decisions. The group decisions tended to be more cautious on items for which widely held values favored the cautious alternative and on which subjects considered themselves relatively cautious.

The results are interpreted as supporting both the Nordhøy-Marquis general values hypothesis and the Brown "value to being relatively risky or relatively cautious" hypothesis.

Since 1961, considerable evidence has accumulated that group discussion leads group members to prefer more risky decisions than they had advocated as individuals. This "risky shift phenomenon" has been found with American (Stoner, 1961), English (Bateson, 1966), and Israeli (e.g., Rim, 1964) subjects, college students and senior executives (Marquis, 1962), males and females (Wallach, Kogan and Bem, 1962), in situations involving advice to a hypothetical person (Stoner, 1961) and in situations where the subjects believe they are risking money (Wallach, Kogan and Bem, 1964) or taking the chance of undergoing an unpleasant physical experience (Bem, Wallach and Kogan, 1965).

Much of this research has utilized a set of 12 life situation problems developed by Wallach and Kogan (1959 and 1961). Originally employed to investigate individual risk-taking propensities, this instrument was adopted by Stoner (1961) to test the hypothesis that groups are more cautious than individuals. Using a simple test-retest design in which individuals recorded their decisions in private and then reached unanimous decisions in six-member groups, Stoner found that, on the instrument as a whole, group decisions were significantly more risky than the mean of the individual group members' prior decisions.

Subsequent studies have replicated the basic finding and have shown that group discussion without a group decision will lead to more risky individual decisions (Marquis, 1962; Wallach and Kogan, 1965). Teger and Pruitt (1967) found that a non-verbal exchange of information restricted to each individual's preferred decision on the life situation problems is sufficient to lead to greater risk-taking by the group members. H. Lamm² has reported that individuals who observe a group discussion of the life situation problems become more risky, as do individuals who listen to tape recordings of the same discussions. Kogan and Wallach (1967b) have also shown a similar effect which is smaller in magnitude than the effect obtained with group discussion.

Most of the post-1961 studies have been oriented toward demonstrating the tendency for various types of group interaction to lead to greater risk-taking, and toward the investigation of hypotheses which might explain this risky shift. Attention has been focused upon individual and group responsibility (Marquis, 1962; Wallach, Kogan and Bem, 1964; Bem, Wallach and Kogan, 1965), leadership (Rim, for example, 1965) group size (Teger and Pruitt, 1967), and other possible explanations or aspects of the situation.

Evidence that group discussion might also lead to more cautious decisions was first demonstrated by Nordhøy (1962) in connection with his master's thesis work with

Marquis. Nordhøy and Marquis noted that the effects of group discussion were not consistent for all of the twelve items used by Stoner and Wallach, Kogan and Bem. Although for at least six items there was strong evidence for greater riskiness following group discussion, on some items there was no systematic tendency for groups to be more risky or more cautious than the individual members had been. And on one item -- a question dealing with marriage -- Stoner's and Wallach, Kogan and Bem's subjects were consistently more cautious following group discussion.

From a study of tape recordings of Stoner's groups and an analysis of the available data, Nordhøy hypothesized that:

In the group, the impact of values which are commonly accepted in the culture to which the subjects belong will be reinforced. The members will express opinions, and also accept arguments more readily which are concordant with these accepted values.

He made the further suggestion that

...on questions where the cultural values support cautious talk or action, individual decisions made after group discussions will be more cautious than individual decisions made without any discussion.

Nordhøy prepared a number of life situation items on which he felt the cultural values of his subjects would tend to support a cautious line of action. For two of these items he did, in fact, find that group discussion led to significantly more cautious decisions by the group members.

At the time that Nordhøy and Marquis were carrying out their work, R. Brown (1965) was formulating and discussing alternative explanations for the risky shift phenomenon. Drawing upon this work and a preliminary finding by Hinds (1962), another of Marquis' thesis students, Brown suggested that for some life situation items the subjects would consider it desirable to be more risky than other people and for other items the subjects would consider it desirable to be more cautious than others. He suggested the group discussion would give many of the subjects the opportunity to discover that, relative to the other members of the group, they were not as risky or cautious as they had believed. For an item on which the subjects expected to be (and considered it desirable to be) relatively risky, the discovery of the positions held by the various group members would encourage the more cautious group members to revise their decisions in the risky direction. The more risky group members would be inclined to maintain their apparently relatively risky positions. Thus, the effect of the discovery of the positions favored by the various group members would be a net shift of the mean preferred individual

decisions in the risky direction. For an item on which the individuals initially believed they were more cautious than other people, group discussion and the discovery of individual positions would lead to a more cautious decision.

The experimental support for the possibility that individuals consider themselves to be more risky than other people on some life situation items is confined to two items included in Hinds's work and to an informal investigation conducted by Brown. In one part of his work, Hinds asked individuals to predict the decision which would be the most frequent decision favored by "200 people like you." Hinds found that when the individuals were formed into groups and reached unanimous decisions, the group decisions (predictions) were more cautious than the means of the original individual decisions of the group members. Thus, group discussion led the discussants to the belief that other people were more cautious than the discussants had originally believed they were.

In an informal investigation of one interpretation of Hinds' results, Brown reports asking

"...one undergraduate class of thirty and one graduate seminar of sixteen to answer a (life situation) problem for themselves and then to guess the mean answers of, respectively, "other Harvard undergraduates" and "other Harvard graduate students." Not one subject guessed that these others would

answer more riskily than themselves; they guessed the others to be the same as themselves or more conservative. It looks as if each person answering as an individual conceives himself to be at least as risky as the average of a reference group." [Brown, 1965, p. 700]

Therefore, although the data are very limited, there is some support for the possibility that individuals consider themselves to be relatively risky on some of the life situation items. The consistency and significance of this perceived relative riskiness, the possibility that individuals may consider themselves to be relatively cautious on other items, the characteristics of such items, and the effects of group discussion on them have not been investigated.

The results reported below took the work of Nordhøy, Marquis, Hinds, and Brown as the point of departure. An attempt was made to replicate Nordhøy's findings, to develop additional items which would demonstrate consistent cautious shifts, to relate the life situation items to an independently derived measure of widely held values, and to obtain a measure of the subjects' perceptions of the decisions preferred by other people like them.

The Nordhøy/Marquis and Brown approaches were interpreted as being two aspects of essentially the same explanation. In its most succinct form it hypothesizes that (i) individuals make their own decisions in manners which are

consistent with widely held values, (ii) individuals consider their own decisions to be more consistent with widely held values than the decisions of other people similar to themselves (a self-chosen reference group), (iii) group discussion and decision-making will lead to individual and group decisions which are still more consistent with widely held values. Thus, it is hypothesized that on items for which widely held values favor a risky decision, individuals will tend to be rather risky, they will consider themselves to be more risky than a self-chosen reference group (other people similar to themselves), and group discussion and decision-making will lead them to prefer still more risky decisions. On items for which widely held values favor a cautious decision, the converse will be true.

METHOD

Subjects

A total of 212 subjects participated in the experiment. Forty-six male subjects were drawn from the Sloan School of Management at M.I.T.; 90 male subjects were drawn from the Harvard Graduate School of Business; and 76 female subjects were drawn from Westgate, the married students' housing complex at M.I.T. The subjects were contacted individually and were asked to participate in a decision-making experiment.

Instruments

Two instruments related to risk-taking and one related to widely held values were utilized. The basic risk-taking instrument was a 12 item life situation questionnaire which included four risky-shift items used in earlier research (Stoner, 1961, Marquis, 1962, Wallach, Kogan and Bem, 1962, etc.), the two items from Nordhøy's research which demonstrated cautious shifts, and six new items. For two of the new items an attempt was made to engage widely held values favoring a risky course of action. For four of the items an attempt was made to engage cautious values. Thus, it was expected that two new items would demonstrate risky shifts and four new items would demonstrate cautious shifts. A typical life situation item is given below.

5. Mr. E has recently received his Doctor of Medicine degree. He plans to pursue a career in medical research. Because of the high quality of his academic work he realizes that he will be able to obtain a substantial grant for virtually any promising research project he wishes to undertake. Two very different projects have occurred to him during the course of his studies. Both projects will take from 5 to 10 years to complete. The first project has many separable components and Mr. E can be assured that with his capabilities he will be successful in developing enough of the components to

establish for himself a substantial reputation in his field as well as related financial benefits. There will be some net benefit to the practice of medicine from this project but the related discoveries are not likely to be of major importance. The second project is likely to be either a complete success or a complete failure. If successful, the project will lead to a cure for a crippling disease which leaves children blind and mentally retarded.

Imagine that you are advising Mr. E. Listed below are several probabilities or odds that the second project (the one involving the crippling disease) will be a success. PLEASE CHECK THE LOWEST PROBABILITY OF SUCCESS WHICH YOU WOULD CONSIDER ACCEPTABLE TO MAKE IT WORTHWHILE FOR MR. E TO UNDERTAKE THE SECOND PROJECT.

- ___ The chances are 0 in 10 that the second project, the one involving the crippling disease, will be a success (i.e., the project is certain to be a failure).
- ___ The chances are 1 in 10 that the second project will be a success.
- ___ The chances are 2 in 10 that the second project will be a success.
- ___ The chances are 3 in 10 that the second project will be a success.
- ___ The chances are 4 in 10 that the second project will be a success.
- ___ The chances are 5 in 10 that the second project will be a success.
- ___ The chances are 6 in 10 that the second project will be a success.
- ___ The chances are 7 in 10 that the second project will be a success.

- ___ The chances are 8 in 10 that the second project will be a success.
- ___ The chances are 9 in 10 that the second project will be a success.
- ___ The chances are 10 in 10 that the second project, the one involving the crippling disease, will be a success (i.e., the project is certain to be a success).

The content of the twelve items, their source, and the expected direction of group shift are summarized below:

1. A dentist with a family must decide whether to undergo an operation which would remove a severe pain if successful but would prevent his continuing his dental practice if unsuccessful. (Nordhøy, cautious)
2. A man about to embark on a vacation trip experiences severe abdominal pains and must choose between disrupting his vacation plans in order to see a doctor or boarding an airplane for a long overseas flight. (new, cautious)
3. A chess player must decide whether to take a maneuver which might bring victory if successful or a defeat if unsuccessful. (Wallach and Kogan, risky)
4. An electrical engineer is faced with an opportunity of joining a new company with an uncertain future which, if it is successful, could offer greater chance for advancement than his present, more secure, position offers. (Wallach and Kogan, risky)

5. A recent medical school graduate is choosing between projects. (new [modified Wallach and Kogan], risky)
6. A father, who has recently received a promotion, is considering spending some savings originally set aside for his sons' college education on a family trip to Europe. (new cautious)
7. A college senior is choosing between attending a high prestige university, which may be too rigorous for him to receive his Ph.D., and a lower prestige university from which he is certain to obtain his degree. (Wallach and Kogan, risky)
8. A couple must choose between allowing a complicated pregnancy to continue, with danger to the mother's life, or having the pregnancy terminated. (new, cautious)
9. A football captain must choose between gaining a tie on the last play of the game or attempting a play which will bring either victory or defeat. (Wallach and Kogan, risky)
10. A person³ involved in an airplane accident must choose between rescuing only his child or attempting to rescue both his spouse and child with the realization that both will be lost if the attempt is unsuccessful.
11. A recently married young man with a pregnant wife is deciding whether or not to give up his hobby of sports-car racing (new, cautious)

12. A man of moderate means is considering borrowing on his life insurance to invest in a stock which may grow substantially in value. (Nordhøy, cautious)

The second risk-related instrument (the "relative riskiness instrument") was based upon Hinds' and Brown's approaches and reads as follows:

Now that you have become familiar with these questions and have given your own advice, we would like you to attempt to guess how other people will answer the same questions. This questionnaire will be given to approximately 200 other people like you. Please attempt to estimate in the spaces below what advice these 200 people, on the average, will give. You may refer back to the original questionnaire while you are completing this sheet.

The third instrument (the "value ranking instrument") asked the subjects to rank 18 phrases "in the order in which they are important to you." The phrases had been written to describe, in general terms, the alternative outcomes which were implicit in each of the twelve life situation items. For example, in the medical research item (#5), the statement associated with the second, more risky project, is "making a meaningful and useful contribution to the health

or welfare of your society." The statement associated with the more cautious alternative is "avoiding the risk of failure in your career." The 18 statements are given below and the life situation items with which they are associated are shown in parentheses. The matching of the statements to the life situation items was independently performed by six different individuals with a satisfactory level of agreement (91% agreement overall).

- A. Avoiding losses in games of a competitive nature. (3C, 9C)⁴
- B. Enjoying an above average standard of living. (12R)
- C. Becoming a mother/father. (8R)
- D. Making a meaningful and useful contribution to the health or welfare of your society. (5R)
- E. The physical safety of your children. (10C)
- F. Working in a job which has potential for advancement and challenge. (4R)
- G. Avoiding the risk of failure in your career. (5C, 7C)
- H. Your own physical comfort. (1R)
- I. Winning games of a competitive nature. (3R, 9R)
- J. Maintaining a stable and consistent record of employment and earnings with the same or, at most, a few employers. (4C)
- K. The financial security of your husband/wife and children. (1C, 11C, 12C)
- L. Your own life. (2C)
- M. Avoiding having to find a new job and thus risking the interruption of your career.

- N. Obtaining the best training available for your particular career. (7R)
- O. Taking vacations with your husband/wife and children. (6R)
- P. Your own favorite leisure-time pursuits. (2R, 11R)
- Q. The physical safety of your husband/wife. (8C, 10R)
- R. Providing an opportunity for your children to attend college. (6R)

Procedure

The M.I.T. and Westgate subjects were asked to complete the value ranking instrument under the guise of participation in someone else's experimental work. Approximately two weeks after completion of the value ranking instrument, the subjects were contacted by the author and asked to participate in a decision-making experiment.

The Harvard, M.I.T., and Westgate subjects completed the life situation and relative riskiness instruments at their leisure and returned them to the experimenter. They were urged not to discuss the material with anyone prior to the completion of the experiment. From one to three weeks after the completion of the two experiments, the subjects were scheduled for participation in the second part of the experiment.

One hundred and ninety subjects met in 33 groups ranging in size from four to seven members and were asked to reach unanimous group decisions on the twelve life situation items.

The instructions did not differ materially from those used by Stoner (1961), Wallach, Kogan and Bem (1962) and other experimenters. An attempt to maintain a uniform group size of six members was made, but subject scheduling difficulties and missed appointments yielded the following distribution of groups: 1 seven-member, 25 six-member, 5 five-member, and 2 four-member groups. Each group was composed of members from the same subject source (Harvard, M.I.T., or Westgate). After the completion of the group discussions, the value ranking instrument was completed by the Harvard subjects for the first time and by 21 M.I.T. and all of the Westgate subjects for the second time.

The remaining 22 subjects (6 from Harvard, 5 from M.I.T., and 11 from Westgate) served as control subjects, completing the life situation, relative riskiness, and value ranking instruments in that order in individual administrations.⁵ Neither the subjects who met in groups nor the control subjects were told in advance what procedures the second part of the experiment would involve. The reactions and comments of the subjects when the value ranking instrument was administered for the second time indicated that none of them had realized that the life situation and value ranking instruments were part of the same experiment.

RESULTS

Initial Decisions and Widely Held Values

The formulation of new life situation items and the choice of old ones was designed to provide items which engage widely held values favoring one course of action over the other. Thus, an attempt was made to juxtapose values on each item in such a way that most of the subjects would consider one of the engaged values to be more important than the other one associated with the problem. Table 1 gives the importance ranking of the value statements associated with each life situation item. With the Kolmogorov-Smirnov two-sample test, the difference on each item is statistically significant. Whether or not a true "cultural value" is being probed, it appears that the difference in professed personal values is widespread within the experimental population.

Insert Table 1 approximately here

In Table 1 the life situation items are divided into two groups: items for which the value statement associated with the risky alternative was ranked by most subjects as more important than the value statement associated with the cautious alternative ("risk-oriented" items); and items for which the associated value statements were ranked in the opposite manner ("caution-oriented" items). If an item engages widely held values which predominantly favor the risky course of action, then the expectation is that the subjects will

make rather risky initial individual decisions. Table 2 shows that the subjects initially advocated more risky courses of action on the risk-oriented items than on the caution-oriented items.

Insert Table 2 approximately here

If the life situation items actually engage the values represented by the value statements which have been associated with them, it would be expected that for a given item subjects who rank the risk associated value statement as more important to them than the caution associated value statement should prefer more risky courses of action than subjects who rank the caution associated statement as more important. Table 3 shows that although the absolute magnitude of these differences are quite small, the differences for the two types of items are statistically significant and for each item the differences are in the expected direction.⁶

Insert Table 3 approximately here

Perceived Relative Riskiness

Tables 1, 2, and 3 present one method of categorizing the twelve life situation items as risk-oriented and caution-oriented items. A second method is based upon the subjects' predictions of the decisions which would be favored by other people similar to themselves. It has been hypothesized that on the risk-oriented items the subjects would perceive themselves to be more risky than "other people like them" and

that they would consider themselves to be relatively cautious on the caution-oriented items. Table 4 presents the comparison of the subjects' own decisions with their predictions of the decisions of "200 other people like them." The subjects considered themselves to be relatively risky for all six of the risk-oriented items and relatively cautious for five of the caution-oriented items. Nine of these differences (six risky and three cautious) are statistically significant.

Insert Table 4 approximately here

The single exception occurred on item #6 (the promotion and family trip to Europe). On this item the subjects perceived themselves to be significantly more risky than their reference group. Thus, the two methods of categorizing the 12 items agree for 11 of the items. Only item #6 would be categorized differently by the two methods.⁷

Group decisions

If a life situation item engages widely held values favoring the risky alternative, then individuals would be expected to be rather risky in their initial decisions; they would tend to consider themselves more risky than others similar to themselves, and the effect of group discussion and decision-making would be to increase the riskiness of the decisions. The relationships would be reversed for caution-oriented items. Table 5 indicates that for all six of the risk-oriented items, the group decisions were significantly more risky than the mean of the individual group members' individual decisions.⁸ Four of the five items classified

unambiguously as caution-oriented demonstrated cautious shifts but only two of the shifts (items 2 and 8) were statistically significant. The single item (#6) whose classification is ambiguous because the two methods yield inconsistent results demonstrated a significant risky shift!

Insert Table 5 approximately here

Four points are immediately clear from Table 5: (1) on the whole, group discussion and decision-making yields very different results on the risk-oriented and caution-oriented items. (2) The items adopted from Nordhøy's work (items 1 and 12) did not yield the expected cautious shift. In the present experiment, the two items demonstrate neither consistently risky nor consistently cautious shifts. (3) In the single case, item #6, for which the two classification methods yielded differing results, the group shift was consistent with the direction which would be expected from the perceived relative riskiness of the subjects. The subjects felt they were more risky than others on that item, and group discussion led to still riskier decisions. (4) Although it appears to be a rather simple matter to write items which demonstrate risky shifts (both new attempts, #5 and #10, were successful), formulating cautious-shifting items is more difficult (only two of four attempts were clearly successful).

A Note on Replication

The failure to replicate Nordhøy's findings on items #1 and 12 strongly suggests the desirability of attempting to replicate the findings for the items which showed cautious shifts in the present study. The three most promising new items (#2, #8 and #11) were used with 21 groups of graduate and undergraduate business school students at the University of Iowa. The mean cautious shifts on the three items were -1.92 ($p < .001$), -1.69 ($p < .01$), and -.88 ($p < .05$), respectively.⁹

DISCUSSION

The results of the present experiment appear to be more consistent with a value hypothesis than with any other. The strength of a value hypothesis is clearly its ability to deal with problems which exhibit a cautious shift. Although the "sharing (or diffusion) of responsibility" hypothesis (Stoner, 1961; Wallach, Kogan and Bem, 1964; etc.) has received considerable attention and is quite plausible, it suffers from the fatal flaw -- for purposes of explaining group shifts on life situation items -- of being compelled to "explain away" in some undefined manner those maverick items which consistently show cautious shifts.

It is not the cautious shifting problems alone which pose a serious problem for the diffusion of responsibility hypothesis. In fact, any life situation problem which

consistently fails to demonstrate a significant risky shift is a serious challenge to the hypothesis. Certainly random noise can prevent any mechanism from working every time that it is evoked. Therefore, the occasional failure of a "tried-and-true" question to demonstrate the "usual" risky shift is not a major problem for the hypothesis. But a life situation item which consistently fails to demonstrate a risky shift raises the fundamental question: "why does responsibility 'diffuse' for some questions and not for others?" Unfortunately, there is nothing, to the author's knowledge, in the diffusion of responsibility hypothesis which explains why responsibility diffuses for some life situation items and not for others.¹⁰

The beauty of the value hypothesis is that, in principle, it can deal with items which consistently shift in either direction and with items which exhibit no consistent shift. With this hypothesis, risky shifts arise because of the dominance of values favoring the risky alternative; cautious shifts come from the dominance of values favoring the cautious alternative; and the absence of a systematic shift would be explained by the failure of the problem to engage, in a consistent manner, values favoring one alternative over the other. The danger of this approach is clearly the temptation to use it in an ex post facto manner to explain any observed shifts or lack of them. In this context, the finding that the subjects' perceptions of their own relative riskiness

tends to be consistent with, and a good predictor of, the subsequent group shift is particularly encouraging because of the relatively uncomplicated mechanism for predicting the direction of group shift which it offers -- as well as the general support for the values approach which it provides.

Although a distinction could be drawn between the Nordhøy/Marquis and Brown formulations of a basic value-oriented group shift hypothesis, the author has chosen to emphasize the similarity of the two approaches. The Nordhøy-Marquis approach considers the increased salience of widely accepted values in the group situation to be the critical mechanism for achieving a group shift. The dominant values would influence the flow of information and the final decisions the subjects would accept. Brown's discussion incorporates this mechanism and also introduces the possibility that individuals consider it desirable, in and of itself, to be relatively risky or relatively cautious on various items. The design of the present experiment does not allow conclusions to be drawn with respect to the relative importance of these or other mechanisms.

Since the completion of the experimental work above, a number of studies have appeared which bear directly on the data presented. Using five life situation items which demonstrate the risky shift phenomenon, Bateson (1966) has shown that non-interacting individuals who prepared detailed notes on the points favoring and opposing the choice of the

risky course of action demonstrate significant risky shifts. Flanders and Thistlewaite (1967) have confirmed and extended this finding. Bateson suggests that individuals may initially be cautious in dealing with new and unfamiliar material. He suggests that through the preparation of "briefs" on the items individuals reduce their initial uncertainty and lose their uncertainty-induced caution. In this manner, he suggests that the basic function of the group discussion is also to reduce the uncertainty which individuals feel when first exposed to the life situation items.

On the other hand, it is possible that the familiarization process could enhance the salience of the widely held values associated with the alternatives posed by the problem. The writing of essays or the making of notes on the items could lead the subject to see more clearly the greater consistency between one course of action and widely held values. In developing a case for one course of action in preference to the other, the course of action which is most consistent with the values held by the subject and by the hypothetical person or persons he is implicitly attempting to persuade as he prepares his brief should be more compelling than a course which runs counter to these values.¹¹ Determination of the effects of the familiarization process on "caution-oriented" items should offer important insights into these alternative explanations of the familiarization shift.

Rabow, Fowler, Bradford, Hofeller, and Shibuya (1966) modified two life situation items so that one resulted in a cautious shift after group discussion and one, which in some earlier studies had shown a risky shift, no longer demonstrated any significant shift. Although their cautious shifting item has been criticized on the grounds that pursuit of the risky alternative appears to involve an unethical aspect (Kogan and Wallach, 1967a), the presentation of cautious shifting items (#2 and #8 above) which are clearly free of that complaint demonstrates that the introduction of ethical dimensions is not required for groups to demonstrate cautious shifts.

The relation between widely held values and initial individual decisions on the life situation items noted above is consistent with Teger and Pruitt's (1967) discussion of the group shifts obtained on the original Wallach and Kogan life situation items and their observation that across the items, initial position is correlated with subsequent group shift. Across the 12 items used in this study, the correlation between initial risk score and group shift is $r = -.89$ ($p < .001$). Thus, items which are initially risky tend to demonstrate risky shifts and items which are initially cautious tend to demonstrate cautious shifts.

Although it is not always apparent which values are evoked in a given experimental situation or with a particular instrument, the value hypothesis is useful in interpreting the tendency toward greater caution observed for

groups in Crow and Noel's (1965) national crisis experiment. In their study, the decision involved the choice of an appropriate response for one nation reacting to the aggressive acts of another. Where the decision involves the risk of a major war, it would not be difficult to argue that most people will believe that great caution is in order.

In the same sense, Rettig and Turoff (1967) have discussed the type of "ethical risk" situation which demonstrates a risky shift:

The risky shift...(took place only where)...the money is needed for a crucial medical operation. What is apparently happening is that the needed medical operation is seen to provide a justifiable reason for taking money illegally. Such group supported justification would qualitatively change the nature of the situation portrayed in (those) items from being unethical to being acceptable, at least in part.

In many decision situations, there will be little or no opportunity for widely held values to be engaged and to play a part in the decision process. In those cases the value hypothesis will offer no guidance to the decisions which will result from group discussion. The gambling situations

used by Lonergan and McClintock (1961), Hinds (1962), and Hubbard (1963) would appear to fall into this category. In bets involving small stakes and small payoffs, it is not clear what strategy, if any, would be consistent with widely held values.

On the other hand, there is substantial evidence that for questions of the life situation type, which appear to engage widely held values, an hypothesis focusing upon these values will be a powerful predictive and explanatory tool.

TABLE 1

Rankings of the Value Statements
Associated with Each Life Situation Item

Risk-oriented items

| Item Number | Median Ranking of Value Statement Associated with | |
|----------------|--|-------------------------|
| | Risky Alternative | Cautious Alternative |
| 3 | 15 | 17 |
| 4 | 7 | 15 |
| 5 | 9 | 16 |
| 7 | 9 | 13 |
| 9 | 15 | 17 |
| 10 | 2 | 3 |

Caution-oriented items

| Item Number | Median Ranking of Value Statement Associated with | |
|----------------|--|-------------------------|
| | Risky Alternative | Cautious Alternative |
| 1 | 11 | 6 |
| 2 | 13 | 3 |
| 6 | 11 | 7 |
| 8 | 5 | 2 |
| 11 | 13 | 6 |
| 12 | 9 | 6 |

\underline{n} = 208 to 209

(\underline{p} < .001 for all items by the Kolmogorov-Smirnov two-sample test).

TABLE 2

Means of Individual Decisions on the Life Situation Items

Risk-oriented Items:

| Item Number | Mean Risk Score* |
|-------------|------------------|
| 3 | 3.84 |
| 4 | 3.98 |
| 5 | 3.41 |
| 7 | 4.91 |
| 9 | 4.38 |
| 10 | 3.61 |

Caution-oriented Items:

| Item Number | Mean Risk Score |
|-------------|-----------------|
| 1 | 7.04 |
| 2 | 7.02 |
| 6 | 5.47 |
| 8 | 8.08 |
| 11 | 7.34 |
| 12 | 7.30 |

*Risk score equals required probability of success multiplied by 10.0.

TABLE 3

Comparison of Risk Scores of Subjects Who Differed in Their Ranking of the Relative Importance of the Value Statements Associated with Each Life Situation Item

| Item Number | Subjects who ranked the value statement associated with the risky alternative as: | | | | Difference of Means Test | |
|-------------------------------|--|-----------------------|--|-----------------------|--------------------------------|-----------|
| | <u>more important</u> than the value statement associated with the cautious alternative | | <u>less important</u> than the value statement associated with the cautious alternative | | <u>t</u> | <u>df</u> |
| | <u>n</u> | mean risk score | <u>n</u> | mean risk score | | |
| <u>Risk-oriented Items</u> | | | | | | |
| 3 | 169 | 3.71 | 38 | 4.34 | 1.41 ^a | 53 |
| 4 | 198 | 3.92 | 10 | 5.00 | 2.02* | 11 |
| 5 | 153 | 3.21 | 55 | 3.82 | 1.55 ^a | 81 |
| 7 | 176 | 4.87 | 32 | 5.06 | .56 | 58 |
| 9 | 168 | 4.17 | 38 | 5.16 | 2.43** | 58 |
| 10 | 151 | 3.28 | 56 | 4.43 | 2.69** | 90 |
| (all 6) | 1015 | 3.93 | 231 | 4.50 | 3.08*** | 367 |
| <u>Caution-oriented Items</u> | | | | | | |
| 1 | 33 | 5.97 | 175 | 7.23 | 2.76** | 43 |
| 2 | 20 | 5.85 | 188 | 7.20 | 1.85* | 23 |
| 6 | 32 | 4.72 | 176 | 5.60 | 1.65 ^a | 43 |
| 8 | 71 | 7.68 | 137 | 8.25 | 1.42 ^a | 136 |
| 11 | 22 | 6.50 | 186 | 7.42 | 1.28 | 24 |
| 12 | 57 | 7.09 | 150 | 7.33 | .70 | 110 |
| (all 6) | 235 | 6.63 | 1012 | 7.13 | 2.48** | 337 |

a = $\underline{p} < .10$ one tail

* $\underline{p} < .05$ one tail

** $\underline{p} < .01$ one tail

*** $\underline{p} < .001$ one tail

TABLE 4

Comparison of Individual Riskiness
with Estimated Riskiness of Others

| Item Number | Mean Difference | <u>t</u> |
|--|--------------------|-------------------|
| Risk-oriented items (+ indicates subject considered himself more risky than "200 others) | | |
| 3 | + .48 | 3.65*** |
| 4 | +1.20 | 8.94*** |
| 5 | +1.00 | 6.47*** |
| 7 | + .78 | 5.45*** |
| 9 | + .29 | 2.30* |
| 10 | +1.29 | 9.70*** |
| Caution-oriented items (-indicates subject considered himself more cautious than "200 others) | | |
| 1 | - .11 | 1.02 |
| 2 | - .35 | 2.22* |
| 6 | + .32 | 2.11 [†] |
| 8 | - .58 | 4.02*** |
| 11 | - .07 | .46 |
| 12 | - .75 | 5.68*** |

* $p < .05$ one-tail t test

** $p < .01$ one-tail t test

*** $p < .001$ one-tail t test

† $p < .05$ two tail t test (because of difference opposite
in sign from expected one)

TABLE 5

Summary of Group Shifts
on the Life Situation Items

| Risk-oriented items | No. of groups | Mean shift | <u>t</u> |
|---------------------|---------------|------------|----------|
| 3 | 33 | 1.48 | 6.93*** |
| 4 | 33 | .72 | 4.25*** |
| 5 | 33 | .75 | 3.84*** |
| 7 | 31 | .71 | 3.49*** |
| 9 | 33 | 1.35 | 6.31*** |
| 10 | 30 | 1.12 | 4.35*** |

Caution-oriented items

| | | | |
|----|----|-------|-------------------|
| 1 | 32 | .13 | .93 |
| 2 | 32 | - .75 | 2.88** |
| 6 | 32 | .57 | 2.15 [†] |
| 8 | 31 | -1.01 | 5.67*** |
| 11 | 33 | - .05 | .22 |
| 12 | 31 | - .10 | .35 |

* $p < .05$ one-tail t test

** $p < .01$ one-tail t test

*** $p < .001$ one-tail t test

† $p < .05$ two-tail t test (because of ambiguity concerning expected direction of shift)

FOOTNOTES

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2. Personal communication (February 17, 1966).
3. In item 10 the life situation was purposely worded so that the sex of the decision-maker was ambiguous.
4. "R" indicates that the item is associated with the risky outcome; "C" indicates that the item is associated with the cautious outcome.
5. Analysis of the test-retest data for the control subjects indicates that no systematic shifts occurred on the instruments between the two administrations.
6. For tables 2 and 3 the first administration of the value ranking instrument to the M.I.T. and Westgate subjects was used. For the Harvard subjects it was possible to administer the instrument only after all other experimental procedures were completed. Analysis of the data showed that the use of the "post" administration data

Footnotes (continued)

from Harvard yields the same conclusions as the "pre" administration for M.I.T. and Westgate. Therefore, the data are combined in Tables 2 and 3.

7. Although its appropriate classification is ambiguous, item #6 is included with the caution-oriented items in Tables 4 and 5 to facilitate comparison with the earlier tables.
8. The method of determining the group shift on each item is to calculate the mean of the individual risk scores of the group members on the first administration of the life situation questionnaire and then subtract the unanimous group decision.
9. The author is indebted to Professors G. C. Hoyt and J. Benson who arranged for and carried out the replication.
10. The usefulness of the diffusion of responsibility hypothesis for dealing with risky shifts on life situation items is also thrown into serious doubt by Marquis' (1962) test and rejection of it and by Bateson's (1966) demonstration that non-interacting individuals can exhibit significant risky shifts.
11. Bateson's familiarization procedures would not provide the subjects with an opportunity to revise their perceptions of the relative riskiness of others. Therefore, his findings would appear to support the enhanced salience of values mechanism rather than the perceived relative riskiness mechanism.

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